

## **Dr. Joshua B. Fisher**

[jbfisher@jpl.nasa.gov](mailto:jbfisher@jpl.nasa.gov)

(323) 540-4569

Water & Carbon Cycles Group

NASA Jet Propulsion Laboratory

California Institute of Technology

4800 Oak Grove Dr., Pasadena, CA 91109, USA

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### **CURRENT POSITION**

- **Scientist**, NASA Jet Propulsion Laboratory (JPL), California Institute of Technology (CalTech)
- **Associate Project Scientist (II)**, Joint Institute for Regional Earth System Science and Engineering (JIFRESSE), University of California, Los Angeles (UCLA)

### **EDUCATION**

- **Post-Doctoral Research Associate, University of Oxford, UK** (2006 – 2008)

Environmental Change Institute, School of Geography & Environment

*I. Global modelling of atmosphere-vegetation-soil interactions; II. Nutrient dynamics in cloudforests and rainforests in the Peruvian Andes*

Supervisor: Yadvinder S. Malhi

- **Ph.D., University of California, Berkeley, USA** (2001 – 2006)

Department of Environmental Science, Policy & Management

*I. The land-atmosphere water flux across plant, ecosystem, global and social scales; II. GIS and spatial analysis for environmental justice and wildlife*

Dissertation co-chairs: Dennis Baldocchi & Greg Biging; Committee members: Todd Dawson & Louise Fortmann

- **B.S., University of California, Berkeley, USA** (1997 – 2001)

College of Natural Resources: Environmental Sciences

*Evapotranspiration methods compared on a Sierra Nevada forest ecosystem*

Thesis advisor: Ye Qi

### **GRANTS/PROJECTS**

- **NASA Earth Ventures Instruments II** (2014 – current)

*ECOsystem Spaceborne Thermal Radiometer Experiment on Space Station (ECOSTRESS) Mission; 30M/6y*

Co-Investigator, Science Lead

- **NASA Terrestrial Hydrology Program (THP)** (2012 – current)

*Bridging the Gap Between MODIS and FLUXNET: Validation of New High Spatial Resolution Satellite-based Estimates of Evapotranspiration Using FLUXNET Observations; 0.5M/3y*

Co-Investigator

- **NASA Carbon Cycle Science (CARBON)** (2014 – current)

*Multi-scale Synthesis and Terrestrial Model Intercomparison Project (MsTMIP) Phase II; 1.6M/3y*

Co-Investigator

- **NASA SERVIR (SERVIR)** (2012 – current)

*East Africa Drought and Agricultural Productivity Assessment and Prediction System; 1.0M/4y*

Co-Investigator

- **NASA Earth Science Decadal Survey** (2010 – current)

*Soil Moisture Active Passive (SMAP) Mission*

Algorithm Development Team Member

- **NASA Venture-class Airborne Earth Observation Science Mission** (2010 – current)

*Carbon in Arctic Reservoirs Vulnerability Experiment (CARVE); 27.9M/5y*

Scientist

- **DOE BER Terrestrial Ecosystem Science (TES)** (2012 – current)

*Nutrient Cycle Impacts on Forest Ecosystem Carbon Cycling: Improved Prediction of Climate Feedbacks from Coupled C-Nutrient Dynamics from Ecosystem to Regional Scales; 1M/3y*

Principal Investigator

- **NSF Geography & Spatial Science (GSS)** (2014 – current)

*Collaborative Research: Links Between Long-Term Soil Carbon Storage and Canopy Properties in Tropical Wet Forests; 178K/3y*

Co-Investigator

- **JPL Strategic University Research Partnership (SURP)** (2014 – current)

*Integrating SMAP Soil Moisture and OCO-2 Fluorescence into UCLA's SSIB Land Surface Model to Test Tropical Dry Season Productivity Impacts; 200K/2y*

Principal Investigator

- **JPL Strategic Initiative Research & Technology Development (RTD)** (2014 – current)

*Autonomous Small UAVs for In-situ Observation of Ecosystem Properties from Leaf to Canopy; 1.3M/3y*

Co-Investigator

- **JPL Strategic Initiative Research & Technology Development (RTD)** (2013 – current)

*Carbon & Ecosystems; 2M/3y*

Co-Investigator

- **JPL Topic Area Research & Technology Development (RTD) (2012 – 2014)**  
*The Regional Hydrological Extremes Assessment System (RHEAS); 250K/2.25y*  
 Principal Investigator
- **NSF Ecosystem Science (2012 – 2014)**  
*A Belowground Framework for Predicting How Plant-Microbe Interactions Couple Carbon and Nutrient Economies of Forests; 400K/2y*  
 Co-Investigator
- **NASA Carbon Monitoring System (CMS) (2012 – 2014)**  
*Reduction in Bottom-Up Land Surface CO<sub>2</sub> Flux Uncertainty in NASA's Carbon Monitoring System Flux Project Through Systematic Multi-Model Evaluation and Infrastructure Development; 0.5M/1.5y*  
 Co-Investigator, Science Team Member  
 Coordinator, Capability Risk Working Group
- **NASA Earth System Data Records (ESDR) Uncertainty Analysis (2011 – 2014)**  
*Estimating, Validating and Conveying Measurement Differences Between Land Surface Temperature and Emissivity Products From NASA's EOS Sensors; 1.2M/3y*  
 Co-Investigator
- **NASA Atmospheric CO<sub>2</sub> Observations from Space (ACOS) (2010 – 2014)**  
*Estimation and Attribution of Global CO<sub>2</sub> Surface Fluxes Using Satellite Observations of CO<sub>2</sub> and CO from TES, GOSAT, and MOPITT; 1.4M/3y*  
 Co-Investigator
- **JPL Strategic Initiative Research & Technology Development (2010 – 2014)**  
*A Multi-disciplinary Evaluation of Earth System Models with Satellite Observations; 4.7M/3y*  
 Co-Investigator
- **NASA Arctic Boreal Vulnerability Experiment (ABoVE) (2013 – 2014)**  
 Science Definition Team (SDT) Member
- **NASA Carbon Monitoring System Pilot Study (2010 – 2012)**  
*Surface Carbon Fluxes; 1.7M/2.5y*  
 Co-Investigator
- **JPL Topic Area Research & Technology Development (RTD) (2010)**  
*Climate Model Physics*  
 Scientist

## PUBLICATIONS

- Fisher, J.B., Sweeney, S., Brzostek, E.R., Evans, T.P., Bourg, N.A., Phillips, R.P., in review. Remote sensing of mycorrhizal associations from canopy spectral properties. Submitted to: *Nature Plants*.
- Vergopolan, N., Fisher, J.B., in review. The impact of deforestation on the hydrological cycle in Amazonia as observed from remote sensing. Submitted to: *Geophysical Research Letters*.
- Wolf, S., Keenan, T.F., Fisher, J.B., Baldocchi, D.D., Desai, A.R., Richardson, A.D., Scott, R.L., Law, B.E., Litvak, M.E., Brunsell, N.A., in review. Warm spring mitigates carbon cycle impact of summer drought but increases summer heating. Submitted to: *Nature Climate Change*.
- Schwalm, C.R., Huntzinger, D.N., Fisher, J.B., Michalak, A.M., Bowman, K., Cias, P., Cook, R., El-Masri, B., Hayes, D., Huang, M., Ito, A., Jacobson, A., Jain, A., King, A.W., Lei, H., Liu, J., Lu, C., Mao, J., Peng, S., Poulter, B., Ricciuto, D., Schaefer, K., Shi, X., Tao, B., Tian, H., Wang, W., Wei, Y., Yang, J., Zeng, N., in review. Toward “optimal” integration of terrestrial biosphere models. Submitted to: *Geophysical Research Letters*.
- Stampoulis, D., Andreadis, K.M., Granger, S.L., Fisher, J.B., Turk, J.F., Behrangi, A., Das, N.D., Ines, A.V., in review. Assessing the hydrologic vulnerability and adaptive capacity at regional scales from space. Submitted to: *Remote Sensing of Environment*.
- Yuan, W., Chen, Y., Xia, J., Fisher, J.B., Dong, W., Zhang, X., Liang, S., Ye, A., Cai, W., Feng, J., in review. Using Bayesian model averaging to estimate terrestrial evapotranspiration in China. Submitted to: *Water Resources Research*.
- Jeong, S.-J., Schimel, D., Frankenberg, C., Drewry, D., Fisher, J.B., Verma, M., Berry, J.A., Lee, J.-E., Joiner, J., Guanter, L., in review. Seasonal decoupling between vegetation greenness and function over northern high latitude forests. Submitted to: *Environmental Research Letters*.
- Lee, J.-E., Saatchi, S., Hollinger, D., Parazoo, N., Fisher, J.B., in review. Soil moisture control of maximum growing season carbon fluxes across AirMOSS study sites over North America. Submitted to: *Agricultural and Forest Meteorology*.
- Badgley, G., Fisher, J.B., Jiménez, C., Tu, K.P., Vinukollu, R., in press. On uncertainty in global evapotranspiration estimates from choice of input forcing datasets. *Journal of Hydrometeorology*.
- Schimel, D., Pavlick, R., Fisher, J.B., Asner, G., Saatchi, S., Miller, C., Frankenberg, C., Hibbard, K., Cox, P., in press. Observing terrestrial ecosystems and the carbon cycle from space. *Global Change Biology*.
- Parazoo, N.C., Bowman, K., Fisher, J.B., Frankenberg, C., Jones, D.B.A., Cescatti, A., Pérez-Priego, Ó, Wohlfahrt, G., Montagnani, L., in press. Optimal estimates of terrestrial gross primary production from chlorophyll fluorescence and biosphere models. *Global Change Biology*.
- Schimel, D., Stephens, B.B., Fisher, J.B., 2015. Effect of increasing CO<sub>2</sub> on the terrestrial carbon cycle.

*Proceedings of the National Academy of Sciences, USA* 112(2): 436-441.

- **Fisher, J.B.**, Huntzinger, D.N., Schwalm, C.R., Sitch, S., 2014. Modeling the terrestrial biosphere. *Annual Review of Environment and Resources* 39: 91-123.
- **Fisher, J.B.**, Sikka, M., Oechel, W.C., Huntzinger, D.N., Melton, J.R., Koven, C.D., Ahlström, A., Arain, M.A., Baker, I., Chen, J.M., Ciais, P., Davidson, C., Dietze, M., El-Masri, B., Hayes, D., Huntingford, C., Jain, A.K., Levy, P.E., Lomas, M.R., Poulter, B., Price, D., Sahoo, A.K., Schaefer, K., Tian, H., Tomelleri, E., Verbeeck, H., Viovy, Nania, R., N., Zeng, N., Miller, C.E., 2014. Carbon cycle uncertainty in the Alaskan Arctic. *Biogeosciences* 11(15): 4271-4288.
- Brzostek, E.R., **Fisher, J.B.**, Phillips, R.P., 2014. Modeling the carbon cost of plant nitrogen acquisition: mycorrhizal trade-offs and multi-path resistance uptake improve predictions of retranslocation. *Journal of Geophysical Research – Biogeosciences* 119(8): 1684-1697.
- Armanios, D., **Fisher, J.B.**, 2014. Measuring water availability with limited ground data: An entirely remote sensing-based hydrologic budget model of the Rufiji Basin, Tanzania using TRMM, GRACE, MODIS, SRB and AIRS. *Hydrological Processes* 28(3): 853-867.
- Behrangi, A., Andreadis, K., **Fisher, J.B.**, Turk, F.J., Granger, S., Painter, T., Das, N., 2014. Satellite-based precipitation estimation and its application for streamflow prediction over mountainous western US basins. *Journal of Applied Meteorology and Climatology* 53: 2823-2842.
- Behrangi, A., Wong, S., Mallick, K., **Fisher, J.B.**, 2014. On the net surface water exchange rate estimated from remote sensing observation and reanalysis. *International Journal of Remote Sensing* 35(6): 2170-2185.
- Chen, Y., Xia, J., Liang, S., Feng, J., **Fisher, J.B.**, Li, X., Li, X., Liu, S., Ma, Z., Miyata, A., Mu, Q., Sun, L., Tang, J., Wang, K., Wen, J., Xue, Y., Yu, G., Zha, T., Zhang, L., Zhang, Q., Zhao, T., Zhao, L., Zhou, G., Yuan, W., 2014. Comparison of satellite-based evapotranspiration models over terrestrial ecosystems in China. *Remote Sensing of Environment* 140: 279-293.
- Yao, Y., Liang, S., Li, X., Hong, Y., **Fisher, J.B.**, Zhang, N., Chen, J., Cheng, J., Zhao, S., Zhang, X., Jiang, B., Sun, L., Jia, K., Wang, K., Chen, Y., Mu, Q., Feng, F., 2014. Bayesian multimodel estimation of global terrestrial latent heat flux from eddy covariance, meteorological, and satellite observations. *Journal of Geophysical Research* 119(8): 4521-4545.
- Deng, F., Jones, D.B.A., Henze, D.K., Bousserez, N., Bowman, K.W., **Fisher, J.B.**, Nassar, R., O'Dell, C., Wunch, D., Wennberg, P.O., Kort, E.A., Wofsy, S.C., Blumkenstock, T., Deutscher, N.M., Griffith, D., Hase, F., Heikkinen, P., Sherlock, V., Strong, K., Sussmann, R., Warneke, T., 2014. Inferring regional sources and sinks of atmospheric CO<sub>2</sub> from GOSAT XCO<sub>2</sub> data. *Atmospheric Chemistry and Physics* 14: 3703-3727.
- Christoffersen, B.O., Restrepo-Coupe, N., Arain, M.A., Baker, I.T., Cestaro, B.P., Ciais, P., **Fisher, J.B.**, et al., 2014. Mechanisms of water supply and vegetation demand govern the seasonality and magnitude of evapotranspiration in Amazonia and Cerrado. *Agricultural and Forest Meteorology* 191: 33-50.
- Clark, K.E., Torres, M.A., West, A.J., Hilton, R.G., New, M., Horwath, A.B., **Fisher, J.B.**, Rapp, J.M., Robles Caceres, A., Malhi, Y., 2014. The hydrological regime of a forested tropical Andean valley. *Hydrology and Earth System Sciences* 18: 5377-5397.
- Traore, A.K., Ciais, P., Vuichard, N., McBean, N., Dardel, C., Poulter, B., Piao, S., **Fisher, J.B.**, Viovy, N., Jung, M., Myneni, R., 2014. 1982-2010 trends of African Light Use Efficiency and inherent Water Use Efficiency: sensitivity to climate and atmospheric CO<sub>2</sub> concentrations. *Remote Sensing* 6: 8923-8944.
- Traore, A.K., Ciais, P., Vuichard, N., Poulter, B., Viovy, N., Guimberteau, M., Jung, M., Myneni, R., **Fisher, J.B.**, 2014. Evaluation of the ORCHIDEE ecosystem model over Africa against 25 years of satellite-based water and carbon measurements. *Journal of Geophysical Research–Biogeosciences* 119(8): 1554-1575.
- Girardin, C.A.J., Silva-Espejo, J.E., Doughty, C.E., Huaraca Huasco, W., Metcalfe, D.B., Durand-Baca, L., Marthews, T.R., Aragão, L.E.O.C., Farfán-Ríos, W., García-Cabrera, K., Halladay, K., **Fisher, J.B.**, Galiano-Cabrera, D.F., Huaraca-Quispe, L.P., Alzamora-Tayne, I., Eguiluz-Mora, L., Salinas-Revilla, N., Silman, M.R., Meir, P., Malhi, Y., 2014. Productivity and carbon allocation in a tropical montane cloud forest in the Peruvian Andes. *Plant Ecology & Diversity* 7(1-2): 107-123.
- Malhi, Y., Farfán Amézquita, F., Doughty, C.E., Silva-Espejo, J.E., Girardin, C.A.J., Metcalfe, D.B., Aragão, L.E.O.C., Huaraca-Quispe, L.P., Alzamora-Tayne, I., Eguiluz-Mora, L., Marthews, T.R., Halladay, K., Quesada, C.A., Robertson, A.L., **Fisher, J.B.**, Zaragoza-Castells, J., Rojas-Villagra, C.M., Pelaez-Tapia, Y., Salinas, N., Meir, P., Phillips, O.L., 2014. The productivity, metabolism and carbon cycle of two lowland tropical forest plots in south-western Amazonia, Peru. *Plant Ecology & Diversity* 7(1-2): 85-105.
- **Fisher, J.B.**, Sikka, M., Sitch, S., Ciais, P., Poulter, B., Galbraith, D., Lee, J.-E., Huntingford, C., Viovy, N., Zeng, N., Ahlström, A., Levy, P.E., Lomas, M.R., Frankenberg, C., Saatchi S., Malhi, Y., 2013. African tropical rainforest net CO<sub>2</sub> fluxes in the 20<sup>th</sup> century. *Philosophical Transactions of the Royal Society B – Biological Sciences* 368(1625): doi:10.1098/rstb.2012.0376.
- **Fisher, J.B.**, Malhi, Y., Torres, I.C., Metcalfe, D.B., van de Weg, M., Meir, P., Espejo, J.E.S., Huaraca, W., 2013. Nutrient limitation in rainforests and cloud forests along a 3000 m elevation gradient in the Peruvian Andes. *Oecologia* 172(3): 889-902.
- Mallick, K., Jarvis, A., **Fisher, J.B.**, Tu, K.P., Boegh, E., Niyogi, D., 2013. Latent heat flux and canopy conductance based on Penman-Monteith, Priestley-Taylor equation, and Bouchet's complementary hypothesis. *Journal of Hydrometeorology* 14: 419-442.
- Vinya, R., Malhi, Y., **Fisher, J.B.**, Brown, N., Brodribb, T., Aragão, L.E., 2013. Xylem cavitation vulnerability influences tree species' habitat preference in miombo woodlands. *Oecologia* 173: 711-720.

- Schwalm, C.R., Huntzinger, D.N., Michalak, A.M., **Fisher, J.B.**, Kimball, J.S., Mueller, B., Zhang, K., Zhang, Y., 2013. Sensitivity of inferred climate model skill to choice of benchmarking datasets and evaluation decisions. *Environmental Research Letters* 8: 024028.
- Mallick, K., Jarvis, A.J., Boegh, E., **Fisher, J.B.**, Drewry, D.T., Tu, K.P., Hook, S.J., Hulley, G., Ardö, J., Beringer, J., Arain, A., Niyogi, D., 2013. A Surface Temperature Initiated Closure (STIC) for surface energy balance fluxes. *Remote Sensing of Environment* 141: 243-261.
- Lee, J.-H., Biging, G.S., Radke, J.D., **Fisher, J.B.**, 2013. An improved topographic mapping technique from airborne LiDAR: application in a forested hillside. *International Journal of Remote Sensing* 34(20): 7293-7311.
- Parazoo, N.C., Bowman, K., Frankenberg, C., Lee, J.-E., **Fisher, J.B.**, Worden, J., Jones, D.B.A., Berry, J., Collatz, G.J., Baker, I.T., Jung, M., Liu, J., Osterman, G., O'Dell, C., Sparks, A., Butz, A., Guerlet, S., Yoshida, Y., Chen, H., Gerbig, C., 2013. Interpreting seasonal changes in the carbon balance of southern Amazonia using measurements of XCO<sub>2</sub> and chlorophyll fluorescence from GOSAT. *Geophysical Research Letters* 40(11): 2829-2833.
- Yao, Y., Liang, S., Cheng, J., Liu, S., **Fisher, J.B.**, Jia, K., Zhao, X., Zhou, G., Zhou, G., Li, Y., Zhao, S., 2013. MODIS-driven estimation of terrestrial latent heat flux in China based on a modified Priestley-Taylor algorithm. *Agricultural and Forest Meteorology* 171-172: 187-202.
- McCabe, M., Miralles, D., Jimenez, C., Ershadi, A., **Fisher, J.**, Mu, Z., Liang, M., Mueller, B., Sheffield, J., Seneviratne, S., Wood, E., 2013. Global-scale estimation of land surface heat fluxes from space: product assessment and intercomparison. In: *Remote Sensing of Energy Fluxes and Soil Moisture Content*, Ed. Petropoulos, G.P. CRC Press, Taylor & Francis Group. 538 pp.
- Kelley, D., Prentice, I.C., Harrison, S., Wang, H., Simard, M., **Fisher, J.B.**, Willis, K., 2013. A comprehensive benchmarking system for evaluating global vegetation models. *Biogeosciences* 10: 3313-3340.
- Lee, J.-E., Frankenberg, C., van der Tol, C., Berry, J.A., Guanter, L., Boyce, C.K., **Fisher, J.B.**, Morrow, E., Worden, J., Asefi, S., Badgley, G., Saatchi, S., 2013. Forest productivity and water stress in Amazonia: observations from GOSAT chlorophyll fluorescence. *Philosophical Transactions of the Royal Society B – Biological Sciences* 280: 20130171.
- Mueller, B., Hirsch, M., Jimenez, C., Ciais, P., Dirmeyer, P.A., Dolman, A.J., **Fisher, J.B.**, Jung, M., Ludwig, F., Maignan, F., Miralles, D.G., McCabe, M.F., Reichstein, M., Sheffield, J., Wang, K., Wood, E.F., Zhang, Y., Seneviratne, S.I., 2013. Benchmark products for land evapotranspiration: LandFlux-EVAL multi-dataset synthesis. *Hydrology and Earth System Sciences* 17: 3707-3720.
- de Gonçalves, L.G.G., Borak, J.S., Costa, M.H., Saleska, S.R., Baker, I., Restrepo-Coupe, N., Muza, M.N., Poulter, B., Verbeeck, H., **Fisher, J.B.**, Arain, M.A., Arkin, P., Cestaro, B.P., Christoffersen, B., Galbraith, D., Guan, X., van den Hurk, B.J.J.M., Ichii, K., Acicoli Imbuzeiro, H.M., Jain, A.K., Levine, N., Lu, C., Miguez-Macho, G., Roberti, D.R., Sahoo, A., Sakaguchi, K., Schaefer, K., Shi, M., Shuttleworth, W.J., Tian, H., Yang, Z.-L., Zeng, X., 2013. Overview of the Large-Scale Biosphere-Atmosphere Experiment in Amazônia Data Model Intercomparison Project (LBA-DMIP). *Agricultural and Forest Meteorology* 182-183: 111-127.
- Magagi, R., Berg, A., Goita, K., Belair, S., Jackson, T., Toth, B., Walker, A., McNairn, H., O'Neill, P., Moghaddam, M., Gherboudj, I., Colliander, A., Cosh, M., Belanger, J., Burgin, M., **Fisher, J.B.**, et al., 2013. Canadian Experiment for Soil Moisture in 2010 (CanEX-SM10): Overview and preliminary results. *IEEE Transactions on Geoscience and Remote Sensing* 51(1): 347-363.
- von Randow, C., Zeri, M., Restrepo-Coupe, N., Muza, M.N., de Goncalves, L.G.G., Costa, M.H., Araujo, A.C., Manzi, A.O., da Rocha, H.R., Saleska, S.R., Arain, M.A., Baker, I.T., Cestaro, B.P., Christoffersen, B., Ciais, P., **Fisher, J.B.**, Galbraith, D., Guan, X., van der Hurk, B., Ichii, K., Imbuzeiro, H., Jain, A., Levine, N., Miguez-Macho, G., Poulter, B., Roberti, D.R., Sahoo, A., Schaefer, K., Shi, M., Tian, H., Verbeeck, H., Yang, Z.-L., 2013. Interannual variability of carbon and water fluxes in Amazonian forest, Cerrado and pasture sites, as simulated by terrestrial biosphere models. *Agricultural and Forest Meteorology* 182-183(15): 145-155.
- **Fisher, J.B.**, Badgley, G., Blyth, E., 2012. Global nutrient limitation in terrestrial vegetation. *Global Biogeochemical Cycles* 26, GB3007, doi:10.1029/2011GB004252.
- Moore, S., **Fisher, J.B.**, 2012. Challenges and opportunities in GRACE-based groundwater storage assessment and management: an example from Yemen. *Water Resources Management* 26: 1425-1453.
- Morel, A., **Fisher, J.B.**, Malhi, Y., 2012. Evaluating the potential to monitor aboveground biomass in forest and oil palm in Sabah, Malaysia, for 2000-2008 with Landsat ETM+ and ALOS-PALSAR. *International Journal of Remote Sensing* 33(11): 3614-3639.
- Polhamus, A.M., **Fisher, J.B.**, Tu, K.P., 2012. What controls the error structure in evapotranspiration models? *Agricultural and Forest Meteorology* 169: 12-24.
- Boroon, M.H.R., **Fisher, J.B.**, 2012. Linking groundwater quality and quantity: an assessment of satellite-based groundwater storage anomalies from GRACE against ground measurements of contaminants in California. *Journal of Environmental Science and Engineering B* 1: 1271-1284.
- Vinya, R., Malhi, Y., Brown, N., **Fisher, J.B.**, 2012. Functional coordination between branch hydraulic properties and leaf functional traits in miombo woodlands: Implications for water stress management and species habitat preference. *Acta Physiologiae Plantarum* 34(5): 1701-1710.
- Papale, D., Agarwal, D.A., Baldocchi, D., Cook, R.B., **Fisher, J.B.**, van Ingen, C., 2012. Database maintenance, data sharing policy, collaboration. In: Aubinet, M., Vesala, T., Papale, D. (eds) *Eddy Covariance: A Practical Guide to Measurement and Data Analysis*, pp. 299-424, Springer, New York.
- Lee, J.-E., Lintner, B.R., Neelin, J.D., Jiang, X., Boyce, C.K., **Fisher, J.B.**, Perron, J.T., Kubar, T.L.,

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- Luo, Y.Q., Randerson, J., Abramowitz, G., Bacour, C., Blyth, E., Carvalhais, N., Ciais, P., Dalmonech, D., **Fisher, J.**, Fisher, R., Friedlingstein, P., Hibbard, K., Hoffman, F., Huntzinger, D., Jones, C.D., Koven, C., Lawrence, D., Li, D.J., Mahecha, M., Niu, S.L., Norby, R., Piao, S.L., Qi, X., Peylin, P., Prentice, I.C., Riley, W., Reichstein, M., Schwalm, C., Wang, Y.-P., Xia, J.Y., Zaehle, S., Zhou, X.H., 2012. A framework of benchmarking land models. *Biogeosciences* 9: 3857-3874.
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  - **Fisher, J.B.**, Whittaker, R., Malhi, Y., 2011. ET Come Home: Potential evapotranspiration in geographical ecology. *Global Ecology and Biogeography* 20: 1-18.
  - Frankenberg, C., **Fisher, J.B.**, Worden, J., Badgley, G., Saatchi, S.S., Lee, J.-E., Toon, G.C., Butz, A., Jung, M., Kuze, A., Yokota, T., 2011. New global observations of the terrestrial carbon cycle from GOSAT: Patterns of plant fluorescence with gross primary productivity. *Geophysical Research Letters* 38: L17706, doi:10.1029/2011GL048738.
  - Attua, E.M., **Fisher, J.B.**, 2011. Historical and future land cover change in a municipality of Ghana. *Earth Interactions* 15(9): 1-26.
  - Krishnamurthy, P.K., **Fisher, J.B.**, Johnson, C., 2011. Mainstreaming local perceptions of hurricane risk into policymaking: A case study of community-based vulnerability GIS in Mexico. *Global Environmental Change* 21: 143-153.
  - Simard, M., Pinto, N., **Fisher, J.B.**, Baccini, A., 2011. Mapping forest canopy height globally with spaceborne LiDAR. *Journal of Geophysical Research* 116: G04021, doi:10.1029/2011JG001708. (Research Spotlight in Eos)
  - Osti, M., Coad, L., **Fisher, J.B.**, Bomhard, B., Hutton, J.M., 2011. Oil and gas development and the World Heritage network and wider protected area network in sub-Saharan Africa. *Biodiversity & Conservation* 20(9): 1863-1877.
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  - Bowman, K.W., Liu, J., Lee, M., Pawson, S., Menemenlis, D., **Fisher, J.B.**, Collatz, G.J., Potter, C., Gregg, W., Brix, H., Ott, L., Zhu, Z., Hill, C., Dutkiewicz, S., Follows, M., Henze, D., Nassar, R., Jones, D., Kulawik, S., Weidner, R., Gunson, M., 2012. Preliminary estimates of carbon emissions constrained by GOSAT from the NASA Carbon Monitoring System Flux Pilot Project. American Geophysical Union, San Francisco, California, USA.
  - Deng, F., Jones, D.B.A., Henze, D., Bowman, K., Kulawik, S., **Fisher, J.B.**, Nassar, R., 2012. Inferring regional sources and sinks of atmospheric CO<sub>2</sub> from GOSAT XCO<sub>2</sub> data. American Geophysical Union, San Francisco, California, USA.
  - **Fisher, J.B.**, Mu, Q., Mallick, K., Wood, E., Tu, K., Badgley, G., Polhamus, A., Vinukollu, R., Jiménez, J., 2012. Global terrestrial evapotranspiration from remote sensing: overview of approaches, algorithms, and products. American Geophysical Union Chapman Conference on Remote Sensing of the Terrestrial Water Cycle, Kona, Hawaii, USA.
  - **Fisher, J.B.**, Mu, Q., Mallick, K., Wood, E., Tu, K., Badgley, G., Polhamus, A., Vinukollu, R., Jiménez, J., 2012. Global terrestrial evapotranspiration from remote sensing: overview of approaches, algorithms, and products. American Meteorological Society, New Orleans, Louisiana, USA.
  - Boland, S., Bowman, K., Crisp, D., Duren, R., Eldering, A., **Fisher, J.**, Frankenberg, C., Gunson, M., Menemenlis, D., Miller, C., 2012. The scientific contributions expected from OCO-3 if installed on the International Space Station. 1<sup>st</sup> Annual International Space Station Research and Development Conference, Denver, Colorado, USA.
  - Mallick, K., **Fisher, J.B.**, Guillaume, A., Ryu, Y., Stephens, G., 2011. Global net radiation for evapotranspiration at 1 km<sup>2</sup>: production and uncertainty assessment. 2011 Western States Remote Sensing of Evapotranspiration Workshop, Boise, Idaho, USA.
  - **Fisher, J.B.**, Polhamus, A., Bowman, K., Collatz, G.J., Potter, C., Lee, M., Liu, J., Jung, M., Reichstein, M., 2011. Evaluation of NASA's Carbon Monitoring System (CMS) Flux Pilot: Terrestrial CO<sub>2</sub> Fluxes. American Geophysical Union, San Francisco, California, USA.
  - Boron, M.H.R., **Fisher, J.B.**, 2011. Linking groundwater quality and quantity: An assessment of satellite-based groundwater storage anomalies from GRACE against ground measurements of contaminants in California. American Geophysical Union, San Francisco, California, USA.
  - Frankenberg, C., **Fisher, J.B.**, Lee, J.-E., Guanter, L., van der Tol, C., Toon, G.C., Kuze, A., Yokota, T., Badgley, G., Butz, A., Jung, M., Saatchi, S., Worden, J., 2011. New global observations of the terrestrial carbon cycle from GOSAT: Patterns of plant fluorescence with gross primary productivity. American Geophysical Union, San Francisco, California, USA. NASA Carbon Cycle & Ecosystems Joint Science Workshop, Alexandria, Virginia, USA.
  - Brix, H., Menemenlis, D., Gregg, W., Bowman, K., Dutkiewicz, S., **Fisher, J.B.**, Follows, M., Hill, C., Jahn, O., Lee, M., Liu, J., Ott, L., Wang, D., 2011. Air-sea CO<sub>2</sub> flux estimates from two data-constrained ocean models for

the NASA Carbon Monitoring Study Flux Pilot Project and their impact on atmospheric CO<sub>2</sub> concentration variability. American Geophysical Union, San Francisco, California, USA.

- Bowman, K.W., Liu, J., Lee, M., Pawson, S., Ott, L.E., Menemenlis, D., **Fisher, J.B.**, Collatz, G.J., Potter, C.S., Gregg, W.W., Brix, H., Zhu, Z., Hill, C.N., Dutkiewicz, S., Follows, M.J., Henze, D.K., Nassar, R., Jones, D.B.A., Kulawik, S.S., Gunson, M.R., Jucks, K.W., 2011. Preliminary estimates of carbon emissions constrained by GOSAT from the NASA Carbon Monitoring Study Flux Pilot Project. American Geophysical Union, San Francisco, California, USA.
- Ott, L., Pawson, S., Zhu, Z., Brix, H., Collatz, G.J., Gregg, W., Hill, C., Menemenlis, D., Potter, C., Bowman, K., Dutkiewicz, S., Eldering, A., **Fisher, J.B.**, Follows, M., Gunson, M., Jucks, K., Kawa, R., Liu, J., Lee, M., 2011. Using GEOS-5 atmospheric transport simulations to test the consistency of land- and ocean-carbon fluxes with CO<sub>2</sub> observations. American Geophysical Union, San Francisco, California, USA.
- **Fisher, J.B.**, Block, G., Guillaume, A., Stephens, G., Miller, C., Lee, J.-E., Sitch, S., Ciais, P., Wang, Y., 2011. Ensemble land surface modeling at JPL. NASA Carbon Cycle & Ecosystems Joint Science Workshop, Alexandria, Virginia, USA.
- **Fisher, J.B.**, Sitch, S., Malhi, Y., Fisher, R.A., Huntingford, C., Tan, S.-Y., 2011. Global modeling of plant N uptake and C allocation. Ecological Society of America, Austin, Texas, USA. (*Invited*)
- **Fisher, J.B.**, Badgley, G., Jiménez, C., Tu, K.P., Vinukollu, R., 2011. Uncertainty in global evapotranspiration estimates from choice of input forcing datasets. NASA/USDA Workshop on "Evapotranspiration: An Essential Observation for Climate Understanding and Efficient Water Management", Silver Spring, Maryland, USA.
- Zelazowski, P., Malhi, Y., Huntingford, C., Sitch, S., **Fisher, J.B.**, 2011. Changes in the potential distribution of humid tropical forests on a warmer planet. British Ecological Society Annual Symposium: Forests and Global Change, Cambridge, UK.
- **Fisher, J.B.**, 2011. Evapotranspiration. International Land Model Benchmarking Project Meeting, Irvine, California, USA. (*Invited*)
- Simard, M., Pinto, N., Baccini, A., **Fisher, J.B.**, 2011. Global forest height from ICESat, MODIS and environmental variables. AmeriFlux Science Meeting & 3<sup>rd</sup> NACP All-Investigators Meeting, New Orleans, Louisiana, USA.
- Frankenberg, C., Butz, A., **Fisher, J.B.**, Toon, G., Kuze, A., Yokota, T., Badgley, G., Worden, J., 2011. Global remote sensing of chlorophyll fluorescence using high-resolution O<sub>2</sub> A-band spectra recorded by the GOSAT satellite. The 7<sup>th</sup> International Workshop on Greenhouse Gas Measurements from Space, Edinburgh, UK.
- Bowman, K., Lee, M., Henze, D., Nassar, R., Pawson, S., Menemenlis, D., **Fisher, J.**, Hill, C., Potter, C., Gregg, W., Collatz, J., Brix, H., Ott, L., Zhu, Z., Dutkiewicz, S., Follows, M., Kulawik, S., Worden, J., Osterman, G., Jones, D., Weidner, R., Gunson, M., Jucks, K., 2011. Preliminary estimates of carbon emissions constrained by GOSAT and TES from the NASA Carbon Monitoring Study Flux Pilot Project. The 7<sup>th</sup> International Workshop on Greenhouse Gas Measurements from Space, Edinburgh, UK.
- Pawson, S., Ott, L., Zhu, Z., Bowman, K., Brix, H., Collatz, J., Dutkiewicz, S., **Fisher, J.**, Gregg, W., Hill, C., Menemenlis, D., Potter, C., Gunson, M., Jucks, K., 2011. Forward modeling of atmospheric carbon dioxide in GEOS-5: Uncertainties related to surface fluxes and sub-grid transport. The 7<sup>th</sup> International Workshop on Greenhouse Gas Measurements from Space, Edinburgh, UK.
- **Fisher, J.B.**, Badgley, G., Blyth, E., 2010. Global nutrient limitation in terrestrial vegetation from remote sensing. American Geophysical Union, San Francisco, California, USA.
- Frankenberg, C., Butz, A., **Fisher, J.B.**, Toon, G., Kuze, A., Yokota, T., 2010. Global remote sensing of chlorophyll fluorescence using high-resolution spectra recorded by the Japanese GOSAT satellite. American Geophysical Union, San Francisco, California, USA.
- **Fisher, J.B.**, Malhi, Y., Torres, I.C., Metcalfe, D.B., van de Weg, M., Meir, P., Espejo, J.E.S., Huaraca, W., 2010. Nutrient limitation in cloud forests and rainforests along a 3000 m elevation gradient in the Peruvian Andes. Ecological Society of America, Pittsburgh, Pennsylvania, USA. (*Invited*)
- **Fisher, J.B.**, Njoku, E.G., Entekhabi, D., 2010. Soil Moisture Active Passive (SMAP): NASA's Earth observation mission to measure soil moisture and freeze/thaw state globally, and provide improved estimates of net ecosystem exchange. Ecological Society of America, Pittsburgh, Pennsylvania, USA.
- Mueller, B., Seneviratne, S.I., Hirschi, M., Corti, T., Jimenez, C., Balsamo, G., **Fisher, J.B.**, Jung, M., Reichstein, M., Sheffield, J., Teuling, A.J., Wang, K., Wood, E., 2010. First results from LandFlux-EVAL intercomparison project: Analysis of multi-year datasets. European Geophysical Union, Vienna, Austria.
- **Fisher, J.B.**, Armanios, D., Tu, K.P., 2009. Global evapotranspiration from remote sensing driven by SRB, AIRS and MODIS, validated at 36 FLUXNET sites. American Geophysical Union, San Francisco, California, USA.
- **Fisher, J.B.**, Sitch, S., Malhi, Y., Fisher, R.A., Huntingford, C., Tan, S.-Y., 2009. What principles govern plant nitrogen uptake responses to changes in CO<sub>2</sub>, climate and nitrogen deposition? American Geophysical Union, San Francisco, California, USA.
- **Fisher, J.B.**, Tu, K., Armanios, D., 2009. Global evapotranspiration from remote sensing. Joint 6<sup>th</sup> International GEWEX and 2<sup>nd</sup> iLEAPS Science Conference; iLEAPS ECSW Meeting; LandFlux Meeting. Melbourne, Australia.
- Morel, A., **Fisher, J.B.**, 2009. Where has the carbon gone? Monitoring biomass and emissions from conversion of rainforest to oil palm in Sabah, Malaysia. Remote Sensing and Photogrammetry Society Annual Conference, Leicester, UK.
- Sitch, S., Clark, D., Cox, P., **Fisher, J.B.**, Fisher, R., Harrison, S., Huntingford, C., Jones, C., Mercado, L., Pacifico, F., 2009. Advances in terrestrial ecosystem processes. QUEST Annual Science Meeting, Swindon, UK.

- **Fisher, J.B.**, Malhi, Y., Fisher, R.A., Tan, S.-Y., Sitch, S., Huntingford, C., 2008. A globally applicable, mechanistic model of plant nitrogen uptake, retranslocation and fixation. American Geophysical Union, San Francisco, California, USA.
- **Fisher, J.B.**, Malhi, Y., de Araújo, A.C., Bonal, D., Gamo, M., Goulden, M.L., Hirano, T., Huete, A.R., Kondo, H., Kumagai, T., Loescher, H., Miller, S., Nobre, A.D., Nouvellon, Y., Oberbauer, S.F., Panuthai, S., von Randow, C., da Rocha, H.R., Roupsard, O., Saleska, S., Tanaka, K., Tanaka, N., Tu, K.P., 2007, 2008. The land-atmosphere water flux in the tropics. LBA-ECO 11<sup>th</sup> Science Team Meeting, Salvador, Bahia, Brazil. iLEAPS Science Conference: Current understanding of how integrated land ecosystem atmosphere processes influence climate dynamics, Hyères, France.
- **Fisher, J.B.**, 2008. QUERCC: Quantifying and Understanding Ecosystem Roles in the Carbon Cycle. QUEST Annual Science Meeting, Winchester, UK. (*Invited*)
- **Fisher, J.B.**, Malhi, Y., de Araújo, A.C., Bonal, D., da Rocha, H.R., Goulden, M.L., Hirano, T., Kumagai, T., Loescher, H., Miller, S., Nobre, A.D., Oberbauer, S., Saleska, S., von Randow, C., Tu, K.P., 2007. The tropical land-atmosphere water flux: Measurements, models and controls for evapotranspiration in the Amazon. LBA-ECO 11<sup>th</sup> Science Team Meeting, Salvador, Bahia, Brazil.
- **Fisher, J.B.**, Tu, K.P., 2007. Global trends in potential and actual evapotranspiration based on 20 years of satellite observations. American Geophysical Union, San Francisco, California, USA.
- **Fisher, J.B.**, Malhi, Y.S., 2006, 2007. Modelling plant nitrogen: fixation, uptake and allocation. QUEST, QUERCC Fall meeting, Edinburgh, UK. First JULES Science Meeting, Exeter, UK.
- Tu, K.P., **Fisher, J.B.**, 2006. Remote sensing of the land-atmosphere water flux: Global validation using FLUXNET data. AmeriFlux meeting, Boulder, Colorado, USA.
- **Fisher, J.B.**, 2006. Summary of past, present and future research. International Networking of Young Scientists on Imaging Techniques and GIS: Applications in Environmental and Natural Resources Management. British Council, Universiti Malaya, Kuala Lumpur, Malaysia.
- **Fisher, J.B.**, Trulio, L.A., Biging, G., Chromczak, D., 2006. Use of GIS and spatial analysis for wildlife management measures. American Society for Photogrammetry and Remote Sensing, Reno, Nevada, USA.
- **Fisher, J.B.**, Misson, L., Goldstein, A.H., 2006. Sap flow measurements for ponderosa pine, manzanita and ceanothus at Blodgett Forest, California. Blodgett Forest Research Workshop, Georgetown, California, USA.
- Tu, K.P., **Fisher, J.B.**, 2006. Remote sensing of the land-atmosphere water flux: Global validation using FLUXNET data. Proceedings of the 1<sup>st</sup> iLEAPS Science Conference, Boulder, Colorado, USA.
- **Fisher, J.B.**, Tu, K., 2005. New global estimates of the land-atmosphere water flux: A fully remote sensing driven, flux site-validated ecophysiological model of evapotranspiration. The 9<sup>th</sup> International Symposium on Physical Measurements and Signatures in Remote Sensing, Beijing, China.
- Dawson, T., Tu, K., **Fisher, J.B.**, Baldocchi, D., 2004. Partitioning Evaporation and Transpiration Using 18-O of Water. Biosphere Atmosphere Stable Isotope Network Meeting, Point Reyes, California, USA.
- **Fisher, J.B.**, 2004. Estimation of Evapotranspiration Across Multiple Scales: Sap Flow, Flux Measurement, Remote Sensing, and Sociology. NASA Earth System Science Network Symposium, Washington, D.C., USA.
- **Fisher, J.B.**, Tu, K., 2004. Validation of MODIS-Derived Parameters with FLUXNET Measurements: Surface Temperature, Air Temperature, Fraction of Photosynthetically Absorbed Radiation, and Albedo. Numerical Terradynamic Simulation Group's MODIS Vegetation Workshop II, Missoula, Montana, USA.
- Tu, K.P., **Fisher, J.B.**, 2004. Remote sensing of plant transpiration and soil evaporation using MODIS data. Numerical Terradynamic Simulation Group's MODIS Vegetation Workshop II, Missoula, Montana, USA.
- **Fisher, J.B.**, 2003. Environmental Justice / Air Toxics analysis for West Oakland: Combining GIS and spatial data analysis. American Public Health Association (Awarded 1<sup>st</sup> Place in the Environment Section Student Award Poster Session), San Francisco, California, USA.
- **Fisher, J.B.**, 2003. Environmental Justice / Air Toxics analysis for West Oakland: Combining GIS and spatial data analysis. GIS Day – Public Interest GIS, University of California, Berkeley, USA.
- **Fisher, J.B.**, DeBiase, T.A., Qi, Y., Xu, M., Goldstein, A., 2001. Evapotranspiration methods compared on a Sierra Nevada forest ecosystem. American Geophysical Union, San Francisco, California, USA.
- DeBiase, T.A., Qi, Y., **Fisher, J.B.**, Baldocchi, D., Goldstein, A., Xu, M., Liang, X., 2001. Comparison of potential evapotranspiration methods based on results from FLUXNET sites in the United States. American Geophysical Union, San Francisco, California, USA.
- DeBiase, T.A., **Fisher, J.B.**, Qi, Y., Goldstein, A., 1999. Evapotranspiration revisited: Linking soil moisture and canopy resistance. International Symposium on Integrated Water Resource Management, University of California, Davis, USA.

## MEDIA

- Featured on: *Art In Science*, Los Angeles County Office of Education, 2015
- Expert Consultant to: *Madam Secretary*, 2015
- **NASA Finds Good News on Forests and Carbon Dioxide**, 2014
- **With Few Data, Arctic Carbon Models Lack Consensus**, 2014
- Featured on: *The Playboy Morning Show*, 2013
- Sound byte for: *KTLA* on Climate Change, 2013
- **NASA Maps How Nutrients Affect Plant Productivity**, 2012
- **NASA Map Sees Earth's Trees in a New Light**, 2012

- Interviewed in: *HydroRisk* website—<http://www.hydrorisk.com/index.php/blog/11>
- Featured in: Hambly, Vivienne, 2009. Into the Amazon's Heart. *Sublime* (October): 12-20.

#### **INVITED TALKS (NON-CONFERENCE)**

- **SMAP Mission Launch Event** (2015)

*Pasadena, California, USA*

“Mud, Mud, Glorious Mud: The Science of SMAP”

- **Art Center College of Design** (2015)

*Pasadena, California, USA*

“Climate Δ”

- **SMAP Mission Pre-Launch Educator Conference** (2014)

*Pasadena, California, USA*

“Mud, Mud, Glorious Mud: The Science of SMAP”

- **Environmental Science and Technology High School** (2014)

*Los Angeles, California, USA*

“Career Development of a NASA Climate Scientist”

- **United Nations Association – Pomona Valley (PVUNA)** (2014)

*Pomona, California, USA*

“Climate Change: The Science & Challenge”

- **University of California, Los Angeles: Seminar in Department of Atmospheric & Oceanic Sciences** (2014)

*Los Angeles, California, USA*

“The Fate of the Terrestrial Biosphere Under Climate Change”

- **KIPP Academy Elementary School** (2014)

*Los Angeles, California, USA*

“Climate Δ”

- **Active Claremont** (2014)

*Claremont, California, USA*

“Climate Δ”

- **University of Southern California: Seminar in Department of Earth Sciences** (2014)

*Los Angeles, California, USA*

“The Fate of the Terrestrial Biosphere Under Climate Change”

- **Child Educational Center: Mud Week** (2013)

*La Cañada, California, USA*

“Mud, Mud, Glorious Mud”

- **Laboratoire des Sciences du Climat et l'Environnement** (2013)

*Gif-sur-Yvette, France*

“CHANGE: Carbon, Hydrology And Nutrients Global Evaluation”

- **Observatoire de Paris** (2013)

*Paris, France*

“CHANGE: Carbon, Hydrology And Nutrients Global Evaluation”

- **Tel Aviv University: Porter School for Environmental Studies** (2013)

*Tel Aviv, Israel*

“CHANGE: Carbon, Hydrology And Nutrients Global Evaluation”

- **LA Climate Rally** (2013)

*Los Angeles, California, USA*

“Climate Science”

- **JPL Climate Day** (2012)

*Pasadena, California, USA*

“Climate Δ”

- **University of Southern California: Science, Technology and Society** (2012)

*Los Angeles, California, USA*

“Climate Science and Society”

- **East Los Angeles College: STEM Summer Academy** (2012)

*Los Angeles, California, USA*

“Climate Δ”

- **Lawrence Magnet School** (2012)

*Pasadena, California, USA*

“Climate Δ”

- **League of Women Voters: When It Rains It Doesn't Pour: Climate Change and Water: A Primer for Voters** (2012)

*Pasadena, California, USA*

“Climate Δ”

- **Jet Propulsion Laboratory: Earth Week Earth Science Talks: What's New in JPL Earth Science?** (2012)

*Pasadena, California, USA*

“What JPL is Doing to Observe and Predict Changes in Earth's Terrestrial Ecosystems and Water Cycle”

- **Pasadena Community College: Environmental Studies** (2012)  
*Pasadena, California, USA*  
 "NASA Earth Science"
- **Jet Propulsion Laboratory: Climate Change Symposium** (2011)  
*Pasadena, California, USA*  
 "CHANGE: Carbon, Hydrology And Nitrogen for Global Evaluation"
- **Jet Propulsion Laboratory: SIRI & USRP Speaker Series** (2011)  
*Pasadena, California, USA*  
 "CHANGE: Carbon, Hydrology And Nitrogen for Global Evaluation"
- **Occidental College: Physical Geology** (2011)  
*Eagle Rock, California, USA*  
 "NASA Earth Science"
- **California Institute of Technology: Yuk Lunch Seminar, Div. of Geological and Planetary Sciences** (2011)  
*Pasadena, California, USA*  
 "CHANGE: Carbon, Hydrology And Nitrogen for Global Evaluation"
- **IEEE: Los Angeles Metro Section** (2010)  
*Monterey Park, California, USA*  
 "CHANGE: Carbon, Hydrology And Nitrogen for Global Evaluation"
- **Occidental College: The Remsen Bird Lecture for Geology, Biology and Chemistry** (2010)  
*Eagle Rock, California, USA*  
 "CHANGE: Carbon, Hydrology And Nitrogen for Global Evaluation"
- **Yale University: School of Forestry and Environmental Studies** (2010)  
*New Haven, Connecticut, USA*  
 "Remote Sensing of the Hydrological Cycle"
- **European Science Foundation** (2008)  
*Porquerolles, France*  
 "QUEST: The State of UK Climate Modelling"
- **Korea University: Division of Environmental Science & Ecological Engineering** (2008)  
*Seoul, South Korea*  
 "QUEST: The State of UK Climate Modelling"
- **University of Oxford: Biodiversity Research Seminar, School of Geography and the Environment** (2008)  
*Oxford, UK*  
 "Evapotranspiration is a proxy for biodiversity, but how accurate are these estimates?"
- **TippingPoint Climate Art Programme: Climate Change: Scientific Briefing Day for Artists** (2007)  
*Oxford, UK*  
 "Earth Observation"
- **University of Oxford: Oriel College, Forum on the Environment** (2007)  
*Oxford, UK*  
 "From Leaf Measurements to Satellite Remote Sensing: Methods in the Environmental Sciences"
- **Korea University: Division of Environmental Science & Ecological Engineering** (2005)  
*Seoul, South Korea*  
 "The land-atmosphere water flux: the individual plant, ecosystem fluxes, global patterns, and the sociological advancement of science"
- **University of California, Berkeley: Department of Environmental Science, Policy, & Management** (2005)  
*Berkeley, California, USA*  
 "Spatial dimensions of environmental justice: GIS and spatial analysis in West Oakland"

## HONORS AND AWARDS

- JPL Team Award (32), ECOSTRESS (2014)
- NASA Group Achievement Award, Carbon Monitoring System Flux Pilot Project Team (2013)
- JPL Team Award (8000), Water Cycle Workshop (2013)
- JPL Team Award (324), Water Cycle Workshop (2012)
- JPL Team Award (324), Carbon Monitoring System (2012)
- JPL Team Award (324), CARVE (2012)
- JPL Team Award (388), CARVE (2012)
- MsTMIP Mini-Grant, NASA, Terrestrial Ecology (2011)
- New Phytologist Trust, Travel Award to 96<sup>th</sup> ESA Annual Meeting (2011)
- JPL Team Award (324), SMAP Science Cal/Val (2010)
- Junior Research Fellowship, Linacre College, Oxford University (2009)
- Cape Farewell, Designated Scientist to Andes Expedition (2009)
- Oxford University, School of Geography and the Environment, ECI Divisional Merit Award (2008)
- Royal Society, Conference Grant (2008)
- European Science Foundation Conference Travel Award (2008)
- iLEAPS Conference Travel Award (2008)
- Large Scale Biosphere-Atmosphere Experiment in Amazonia Travel Award (2007)

- Oxford University ECI Small Grants for Postgraduate Research (2007)
- British Council International Networking for Young Scientists (2006)
- University of California, Berkeley Faculty Research Grant (2004 – 2006)
- G. Fitzgarrald Martin Scholarship (2005)
- NASA Earth System Science Fellowship (2002 – 2005)
- American Public Health Association Environment Section Student Award Poster Session (*1<sup>st</sup> Place*) (2003)
- US EPA, Region 9 Air Division Certificate of Appreciation (2001)
- The National Dean's List Award (2001)
- Association of California Water Agencies (2000)
- Los Angeles Audubon Society Urban Wildlife Award (1993)

## **ACADEMIC ACTIVITIES**

- Convener, Remote Sensing of Vegetation Function and Traits, AGU Fall Meeting (2014)
- Judge, AGU Fall Meeting, Outstanding Student Paper Award (2014)
- Member, Carbon Cycle & Ecosystems Joint Science Workshop Steering Committee (2014)
- Convener, Remote Sensing of Vegetation Function and Traits, AGU Fall Meeting (2014)
- Editor, International Journal of Applied Earth Observation and Geoinformation (Special Issue: *Advances in Remote Sensing of Vegetation Function and Traits*) (2014)
- Panelist, Ask A Climate Scientist, Earth Day Events at Caltech (2014)
- Convener, Remote Sensing of Vegetation for Monitoring Ecosystem Functioning, AGU Fall Meeting (2013)
- Judge, AGU Fall Meeting, Outstanding Student Paper Award (2013)
- Coordinator, NASA Carbon Monitoring System Capability Risk Working Group (2013)
- Member, NASA Terrestrial Ecology Modeling Working Group (2013)
- Judge, Climate Debate, Notre Dame High School, Sherman Oaks, CA (2013)
- Panelist, Moderator, ClimatePalooza, USC Annenberg School for Communication and Journalism, NASA JPL (2013)
- Judge, AGU Fall Meeting, Outstanding Student Paper Award (2012)
- Science Team Member, NASA Carbon Monitoring System, NASA (2012)
- Lead Organizer, JPL Workshop on "Water in a Changing Climate: The Science", NASA JPL (2012)
- Host, UC Berkeley Student Externship Program (2012)
- Presider, Biogeochemistry: New Paradigms in Biogeochemical Cycling 1; and, Judge, Bell-Braun Student Presentations, Ecological Society of America (2011)
- Co-chair, New and Emerging Satellite Missions for Remote Sensing Hydrology I, American Geophysical Union (2010)
- iLEAPS Scientific Organizing Committee, Early Career Scientist Workshop (2010-2011)
- TES/AIRMOSS Hiring Committee Member, NASA JPL, CalTech (2010)
- External Reviewer, Xishuangbanna Tropical Botanical Garden, Chinese Academy of Sciences (2010)
- Member, Oxford University Supreme Governing Body (Congregation) (2009-2010)
- Ecosystems Group Representative, ECI Management Team, University of Oxford (2008-2010)
- Member, ECI MSc Core Teaching Team, University of Oxford (2008-2010)
- Coach, Oxford University Men's Basketball Team (Blues) (2006)
- Contributing Sports Journalist, Cherwell 24 Newspaper and The Oxford Student (2006)
- Departmental Liaison, UC Berkeley Graduate Assembly (2005-2006)
- Member, Graduate Programs Committee, UC Berkeley Dept. ESPM (2004-2005)
- Graduate Student Representative, Graduate Student Admissions, UC Berkeley Dept. ESPM (2004-2005)
- Member, Judicial Committee, UC Berkeley Graduate Assembly (2004-2005)
- Departmental Delegate, UC Berkeley Graduate Assembly (2002-2005)
- Graduate Student Representative, Faculty Search Committee, UC Berkeley Dept. ESPM (2004)
- Chair, UC Berkeley Graduate Assembly's Committee on Affirmative Action (2004)
- President, UC Berkeley Environmental Sciences Students Association (2001)
- Member, UC Berkeley Hapa Issues Forum (1998-2001)
- Student advisor to the dean, UC Berkeley College of Natural Resources (1997)
- President, Taft High School Ecology Club (1997)

## **REVIEWER**

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| <ul style="list-style-type: none"> <li>• <i>Advances in Water Resources</i></li> <li>• <i>Agricultural &amp; Forest Meteorology</i></li> <li>• <i>American Public Health Association</i></li> <li>• <i>Annals of Botany</i></li> <li>• <i>Atmospheric Chemistry and Physics</i></li> <li>• <i>Belgian Remote Sensing Research Programme</i></li> <li>• <i>Biogeosciences</i></li> <li>• <i>BioScience</i></li> <li>• <i>Biotropica</i></li> </ul> | <ul style="list-style-type: none"> <li>• <i>IEEE Geoscience and Remote Sensing Letters</i></li> <li>• <i>IPCC AR5 (Expert Reviewer)</i></li> <li>• <i>Journal of Advances in Modeling Earth Systems</i></li> <li>• <i>Journal of the American Water Resources Association</i></li> <li>• <i>Journal of Applied Meteorology and Climatology</i></li> <li>• <i>Journal of Biogeography</i></li> <li>• <i>Journal of Climate</i></li> <li>• <i>Journal of Geography &amp; Regional Planning</i></li> <li>• <i>Journal of Geophysical Research – Atmospheres</i></li> <li>• <i>Journal of Geophysical Research – Biogeosciences</i></li> </ul> |
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- Climate Research
- Climatic Change
- Ecological Engineering
- Ecological Modelling
- Ecology
- Ecosystems
- Environmental Research Letters
- Environmental Science & Policy
- EOS
- Geophysical Research Letters
- Geoscience & Remote Sensing Letters
- Geoscientific Model Development
- Global Change Biology
- Global Change Biology – Bioenergy
- Global Ecology and Biogeography
- Global and Planetary Change
- Health & Place
- Hydrogeology Journal
- Hydrological Processes
- Hydrological Sciences Journal
- Hydrology and Earth System Sciences
- IEEE Transactions on Geoscience & Remote Sensing
- Journal of Hydrology
- Journal of Hydrometeorology
- Journal of Selected Topics in Earth Observations & Remote Sensing
- Journal of Wildlife Management
- Land Use Policy
- Landscape and Urban Planning
- Nature
- Nature Geoscience
- Nature Plants
- New Phytologist
- Oecologia
- Plant Ecology & Diversity
- PLOS ONE
- Progress in Physical Geography
- Remote Sensing of Environment
- Theoretical and Applied Climatology
- Tree Physiology
- UK Natural Environment Research Council (NERC)
- US Department of Energy (DOE)
- US National Aeronautics and Space Administration (NASA)
- US National Science Foundation (NSF)
- Water Resources Research

## TEACHING

- **Introduction to Remote Sensing, GIS & Modelling** (2007 – 2009)

*University of Oxford, UK, Environmental Change Institute and School of Geography and the Environment*

MSc in Environmental Change & Management

MSc in Biodiversity, Conservation & Management

MSc in Water Science, Policy & Management

- **Earth Observation: Ecological Applications** (2006 – 2009)

*University of Oxford, UK, School of Geography and the Environment*

- **Land-Surface Climatology** (2007)

*University of Oxford, UK, School of Geography and the Environment*

- **Evapotranspiration: Sap Flow, Isotopes, Eddy Flux, Modelling & Remote Sensing** (2006)

*University of Oxford, UK, Centre for the Environment – Water Science, Policy & Management MSc*

- **Senior Research Seminar in Environmental Sciences** (2005 – 2006)

*University of California, Berkeley, USA, Department of Environmental Science, Policy, & Management*

- **Environmental Justice: Race, Class, Equity & the Environment** (2004)

*University of California, Berkeley, USA, Department of Environmental Science, Policy, & Management*

- **Natural Resource Sampling & Assessment** (2002)

*University of California, Berkeley, USA, Department of Environmental Science, Policy, & Management*

## STUDENTS

### Current

- Cai, Xitian, Ph.D. in Department of Geosciences, UT-Austin; JPL DRDF/SURP/SC 2013  
Integration of Nitrogen Cycle Dynamics into the Noah-MP Land Surface Model: Application for Environmental Modeling and Prediction

### Graduated 2014

- Halterman, Sarah, Ph.D. in Department of Geography, UCLA; JVSRP  
Links Between Long-Term Soil Carbon Storage and Canopy Properties in Tropical Wet Forests
- Kacey Deamer, M.S. in Annenberg School for Communication and Journalism, USC; JVSRP  
Climate science communication
- Vergopolan, Noemi, B.S. in Environmental Engineering, Federal University of Paraná, Brazil; JVSRP 2013  
Impact of deforestation in Amazonia on the regional hydrological cycle from remote sensing

### Graduated 2013

- Sok, Malen, B.S. in Computer Science, Cal State Poly Pomona; SIRI, JVSRP 2012-2013  
Global land surface modeling with the HyLand dynamic global vegetation model
- Palmer, Claralyse, Agoura High School 2012-2013  
The potential of potential evapotranspiration

### Graduated 2012

- O'Connor, Daniel, B.S. in Biology, Occidental College; SIRI 2012 (completed internship)

Expansion and refinement of the Fixation & Uptake of Nitrogen model  
• Marquez, Elisha, Eagle Rock High School; Minority Student Programs 2012  
Ecohydrology  
*Awarded the Sister Clarice Lolich Outstanding Student Presentation Award*

Graduated 2011

- Tsao, Nicholas, MSc in Environmental Change and Management, Oxford University 2010-2011  
Can vegetation water content be observed globally from satellite remote sensing? An assessment of six products using a combination of radar, microwave and optical data, and implications for water and carbon cycles

Graduated 2010

- Badgley, Grayson, MSc in Environmental Change and Management, Oxford University 2009-2010  
Nutrients from space: Remote sensing nutrient limitation in terrestrial vegetation  
*Awarded Distinction and Overall Distinction (Coursework, Dissertation and Exams)*
- Garonna, Irene, MSc in Environmental Change and Management, Oxford University 2009-2010  
Land surface temperature model intercomparison and validation with FLUXNET and MODIS data  
*Awarded Distinction*
- Moore, Scott, MSc in Environmental Change and Management, Oxford University 2009-2010  
Charting the subterranean sea: The promise of groundwater storage change assessment from satellite observations and the persistent challenges of water management in Yemen  
*Awarded Overall Distinction (Coursework, Dissertation and Exams)*
- Polhamus, Aaron, MSc in Environmental Change and Management, Oxford University 2009-2010  
Sources of bias in latent heat of evaporation model predictions: Should parameterizing resistances be a priority?  
*Awarded Distinction*

Graduated 2009

- Armanios, Daniel, MSc in Water Science, Policy & Management, Oxford University 2008-2009  
A remote sensing framework to gauge sustainability of community water practices: A quantitative diagnostic for integrated water resource management decision support models
- Gadsden, Martin, MSc in Biodiversity, Conservation & Management, Oxford University 2008-2009  
Maximising biodiversity conservation benefits of REDD strategies in Peru  
*Awarded Distinction*
- Krishnamurthy, Krishna, MSc in Environmental Change and Management, Oxford University 2008-2009  
Mainstreaming disaster risk reduction into development strategies  
*Awarded Distinction and Best Overall Performance, ECM 2008-2009 (Coursework, Dissertation and Exams)*
- Massey, Ashley, MSc in Biodiversity, Conservation & Management, Oxford University 2008-2009  
Dragons prevent deforestation? The protection and governance of Kiang West National Park in the Gambia, West Africa  
*Awarded Distinction and Best Overall Performance, BCM 2008-2009 (Coursework, Dissertation and Exams)*
- Plotnykova, Hanna, MSc in Biodiversity, Conservation & Management, Oxford University 2008-2009  
GIS-based conservation management for the Ukraine
- Thomas, Matt, MSc in Environmental Change and Management, Oxford University 2008-2009  
Impacts of climate change on an ancient woodland  
*Awarded Distinction*
- Wong, Chun (John) Yuen, MSc in Biodiversity, Conservation & Management, Oxford University 2008-2009  
Climate change impacts on polar migratory bird routes

Graduated 2008

- Gibbon, Adam, MSc in Environmental Change & Management, Oxford University 2007-2008  
Carbon stocks of the high elevation Andes Mountains: Puna grasslands and upper tropical cloud forests of Manu National Park, Peru  
*Awarded Distinction and Best Overall Performance, ECM 2007-2008 (Coursework, Dissertation and Exams)*
- MacDonald, Ewan, MSc in Environmental Change & Management, Oxford University 2007-2008  
Evaluating measures of conservation success: The case study of Nantu Nature Reserve, Sulawesi  
*Awarded Distinction*
- Tan, Su-Yin, MSc in Environmental Change & Management, Oxford University 2007-2008  
Modelling nitrogen uptake in temperate and tropical forests  
*Awarded Best Presentation, Dissertation Proposal*

Graduated 2007

- Blandford, Rebecca, MSc in Environmental Change & Management, Oxford University 2006-2007  
An investigation of the temporal dynamics of self-organised vegetation patterns in a semi-arid ecosystem  
*Awarded Distinction and Best Overall Dissertation, ECM 2006-2007*

**PROFESSIONAL EXPERIENCE**

- **Scientist** (2010 – current)  
*Water & Carbon Cycles Group, NASA Jet Propulsion Laboratory (JPL), California Institute of Technology (CalTech); Visiting Assistant Researcher of the Joint Institute for Regional Earth System Science and Engineering (JIFRESSE) at the University of California, Los Angeles (UCLA).*
- **Departmental Lecturer & Research Fellow** (2008 – 2009)  
*University of Oxford, Environmental Change Institute, School of Geography & Environment*
- **GIS Consultant** (2003 – 2005)  
*NASA Ames Research Center, Office of Safety, Environmental and Mission Assurance*  
*San Jose State University, Department of Environmental Studies*
- **Environmental Protection Specialist** (2003)  
*NASA Ames Research Center, Office of Safety, Environmental and Mission Assurance*
- **Environmental Protection Specialist** (2001 – 2002)  
*United States Environmental Protection Agency (US EPA), Region 9: Air Division*

## RELEVANT SKILLS

- Geographic Information Systems (ArcGIS; AutoCAD); Photogrammetry and Remote Sensing (PCI Geomatica; IDRISI; Erdas Imagine; ImageJ)
- Ecosystem and Global Modeling (MATLAB; Simile, STELLA; Fortran)
- Statistical, Spatial, and Time Series Analysis (SPLUS; SAS; JMP; StatView; CrimeStat)
- Ecology: Plant Physiology, Ecosystem, Population and Community
- Biometeorology; Biodiversity; Biology; Forest and Terrestrial Hydrology
- Stable Isotope Methods and Mass Spectrometry; Civil & Env. Engineering
- Environmental Economics; Forest Management and Economics
- Linear Algebra & Differential Equations; Analytic Geometry & Calculus; Physics
- Chemistry: General, Organic, and Atmospheric
- Sociology; Environmental Justice; Social Science Research Methods
- Intermediate Spanish; Elementary Mandarin Chinese
- Adobe Photoshop, Illustrator, Premiere; iMovie, iWeb, GarageBand; html, web design/development

## REFERENCES

- **Dr. David Schimel, Senior Carbon Cycle Scientist**  
 Jet Propulsion Laboratory, M/S 233-306C  
 4800 Oak Grove Drive  
 Pasadena, CA 91109, USA  
 E-mail: [david.schimel@jpl.nasa.gov](mailto:david.schimel@jpl.nasa.gov)  
 Phone: (818) 354-6803
- **Professor Yadvinder S. Malhi, Program Leader of Ecosystem Dynamics**  
 University of Oxford  
 Environmental Change Institute, School of Geography & Environment  
 South Parks Road, Oxford, OX1 3QY, UK  
 E-mail: [yadvinder.malhi@ouce.ox.ac.uk](mailto:yadvinder.malhi@ouce.ox.ac.uk)  
 Phone: +44 (0) 1865 285188
- **Professor Dennis D. Baldocchi, Division Chair of Ecosystem Science**  
 University of California at Berkeley  
 Department of Environmental Science, Policy & Management  
 137 Mulford Hall #3114  
 Berkeley, CA 94720, USA  
 E-mail: [baldocchi@nature.berkeley.edu](mailto:baldocchi@nature.berkeley.edu)  
 Phone: (510) 642-2874
- **Dr. Sassan S. Saatchi**  
 Jet Propulsion Laboratory, M/S 300-319  
 4800 Oak Grove Drive  
 Pasadena, CA 91109, USA  
 E-mail: [sasan.s.saatchi@jpl.nasa.gov](mailto:sasan.s.saatchi@jpl.nasa.gov)  
 Phone: (818) 394-1051
- **Dr. Kevin Bowman**  
 Jet Propulsion Laboratory, M/S 300-329  
 4800 Oak Grove Drive  
 Pasadena, CA 91109, USA  
 E-mail: [kevin.w.bowman@jpl.nasa.gov](mailto:kevin.w.bowman@jpl.nasa.gov)  
 Phone: (818) 354-2995
- **Dr. Duane Waliser, Chief Scientist of Earth Science & Technology Directorate**  
 Jet Propulsion Laboratory, M/S 301-320  
 4800 Oak Grove Drive  
 Pasadena, CA 91109, USA

E-mail: [duane.e.waliser@jpl.nasa.gov](mailto:duane.e.waliser@jpl.nasa.gov)

Phone: (818) 353-4094

• **Dr. Michael Gunson**

Jet Propulsion Laboratory, M/S 301-320

4800 Oak Grove Drive

Pasadena, CA 91109, USA

E-mail: [michael.r.gunson@jpl.nasa.gov](mailto:michael.r.gunson@jpl.nasa.gov)

Phone: (818) 354-2124

• **Dr. Simon Hook**

Jet Propulsion Laboratory, M/S 183-501

4800 Oak Grove Drive

Pasadena, CA 91109, USA

E-mail: [simon.j.hook@jpl.nasa.gov](mailto:simon.j.hook@jpl.nasa.gov)

Phone: (818) 354-0974

• **Dr. Eni G. Njoku, Supervisor of Water & Carbon Cycles Group**

Jet Propulsion Laboratory, M/S 300-329

4800 Oak Grove Drive

Pasadena, CA 91109, USA

E-mail: [eni.g.njoku@jpl.nasa.gov](mailto:eni.g.njoku@jpl.nasa.gov)

Phone: (818) 354-3693

• **Professor Louise P. Fortmann, Division Chair of Society & Environment**

University of California at Berkeley

Department of Environmental Science, Policy & Management

121 Giannini Hall

Berkeley, CA 94720, USA

E-mail: [fortmann@nature.berkeley.edu](mailto:fortmann@nature.berkeley.edu)

Phone: (510) 642-7018